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U.S. Foreign Animal Disease Report

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This Issue

- Emergency Programs Activities
Foreign Animal Disease Update
National Center for Import and Export
Velogenic Neurotropic Newcastle Disease in North America
An Outbreak of Equine Illness in New England
Bovine Spongiform Encephalopathy Worldwide
Screwworm Outbreak in Mexico—Update
Viral Hemorrhagic Disease of Rabbits in Mexico—Update

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Emergency Programs Activities

Field Investigations. During the last half of fiscal year (FY) 1992, a total of 166 investigations of suspicious foreign animal diseases (FAD) were conducted by veterinarians from the U.S. Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Veterinary Services (VS), and State departments of agriculture.

There were 55 investigations conducted in the Northern Region, 53 in the Southeastern Region, 30 in the Central Region, and 28 in the Western Region.

During all of FY 1992, 238 investigations of suspicious cases of FAD were conducted. The following is a summary of investigations conducted according to suspected diseases or conditions: vesicular conditions 79 (33.2 percent), miscellaneous conditions 59 (24.8 percent), exotic Newcastle disease 50 (21.0 percent), mucosal conditions 16 (6.7 percent), encephalitic conditions 16 (6.7 percent), hog cholera 13 (5.5 percent), and avian influenza 5 (2.1 percent). No FAD were found except for one case of velogenic neurotropic Newcastle disease in a turkey flock in North Dakota.

Bovine Spongiform Encephalopathy (BSE) Surveillance Program. The BSE surveillance program that began in May 1990 continues. Pathologists at the National Veterinary Services Laboratories (NVSL) and the Iowa State University are examining bovine brains submitted to NVSL from the following sources: (1) FAD investigations where suspected encephalitic conditions in cattle are reported, (2) specimens that were found negative for rabies at the Centers for Disease Control in Atlanta, GA, (3) specimens collected at slaughter from abattoirs in selected potential high-risk States, and (4) brain tissues submitted by veterinary diagnostic laboratories in the United States. NVSL personnel have examined 500 bovine brains. None of these 500 specimens contained lesions with the characteristics and distribution typical for BSE. Of the traced cattle imported from the United Kingdom since 1981 (393 out of 459), none showed any clinical signs of BSE. Even though there have been no cases of BSE diagnosed in the United States, APHIS, in cooperation with the Food Safety and Inspection Service (FSIS), will intensify surveillance activities. Plans are to designate several pilot plants and to work closely with plant management and FSIS to collect brains from "downer" cows and those that are showing central nervous system symptoms. After the proce-

dures have been developed, plans call for expanding the number of plants involved. Collection efforts will be directed toward plants that slaughter large numbers of cull dairy cattle.

Simulated Exercise. During July 1992, an exercise was conducted to test the Regional Emergency Animal Disease Eradication Organization (READEO) of both the Central and Northern Regions. The test exercise involved a simulated outbreak of a fictitious swine disease that mimicked an emergency disease outbreak. The Central READEO was located near San Antonio, TX, and the simulated outbreak covered an area of east central Texas and southern Missouri. The Northern READEO was located near Cincinnati, OH, and the simulated outbreak covered a tri-State area of Ohio, Indiana, and Kentucky. Representatives of the swine industry were actively involved in planning and conducting the exercise. It was designed to test and strengthen the ability of APHIS, the States, and the industry to respond effectively and efficiently to a potential emergency animal disease outbreak.

During the exercise, deficiencies were identified, and actions are being taken to correct them. During FY 1993, another exercise involving a different Region and a different simulated disease outbreak will be conducted. Lessons learned from previous exercises will be used to enhance emergency response capabilities and preparedness. The industry will again be actively involved in developing and conducting the exercise.

Environmental Impact and Assessments. An environmental impact statement (EIS) for carcass disposal is being developed and will be part of a broader programmatic EIS that will cover all site-specific VS actions or activities that could be conducted during any disease management situation. The programmatic EIS will allow for rapid environmental analysis to be conducted in the event of an emergency disease outbreak. A well-written, programmatic EIS will facilitate rapid decisions in the initial stages of an emergency.

The three program areas that will be addressed in the EIS are prevention, surveillance, and control. These areas will be examined for potential environmental impact, and alternatives will be developed if necessary. All environmental concerns related to the control of an emergency condition will be considered collectively rather than as individual entities. This process will provide a more comprehensive EIS that will be the basis for making the appropriate decisions concerning control and eradication of an emergency condition. The EIS on environmental issues involved in disease control and eradication activities is being developed by the Biotechnology, Biologics and Environmental Protection unit of APHIS.

Workshops and Training. In September 1992, a workshop on emergency preparedness and planning was held in Denver, CO, for State Veterinarians and for the "lead elements" of the READEO's of the Central and Western Regions. Lead elements consist of the Office of the Director, and the Administration, Field Operations, and Technical Support Officers. The objectives of the workshop were to inform State Veterinarians of the threats and implications of certain FAD, explain actions being taken to prevent their introduction, and describe proposed actions that must be taken if an emergency disease outbreak should occur in the United States. Discussions were held concerning responsibilities of State and Federal animal health officials to identify actions that each should take to improve emergency preparedness and response capabilities.

A similar workshop was held January 27–28, 1993, in Baltimore, MD, for State Veterinarians in the Northern and Southeastern Regions.

Training activities for the latter months of FY 1993, including courses and workshops, are designed to enhance foreign animal disease detection and emergency responses. Schedules for these activities have been distributed within APHIS and to State Cooperators:

Second Quarter: FAD diagnosticians' course, March 1–12, at the NVSL (Ames, IA) and the Foreign Animal Disease Diagnostic Laboratory (Plum Island, NY).

Third Quarter: Seminar for FAD diagnosticians, Central and Western Regions, April 12–16, at NVSL (Ames, IA).

FAD diagnosticians' course, May 2–15, at NVSL and the Foreign Animal Disease Diagnostic Laboratory.

READEO workshop, May 24–28 (Western Region) and June 14–18 (Southeastern Region).

Fourth Quarter: Threats and implications course, July 11–16, 1993, at Fort Collins, CO.

Wildlife seminar, July 1993, Athens, GA.

Military support course, September 13–17, Hyattsville, MD.

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Foreign Animal Disease Update

This update consolidates information from the Office International des Epizooties (OIE) bulletins into tables covering January through June 1992 and selected late submissions from 1991. Countries reporting disease outbreaks are listed below the appropriate disease heading (followed by the month/year of the report and total number of outbreaks reported for that time period). The notation "+" indicates that the presence of disease was reported without information on total number of outbreaks. Outbreak number followed by "+" indicates number of outbreaks as well as the presence of disease.

Foot-and-Mouth Disease

<i>Virus untyped</i>	<i>Virus O</i>	<i>Virus A</i>
Brazil (1–4/92) 352	Algeria (1,2,4&5/92) 10	Brazil (1–4/92) 16
Bhutan (1&2/92) 7	Bahrain (1&3/92) +	Colombia (1&2/91, 3&4/92) 13
Chad (1&2/92) 3+	Brazil (1–4/92) 27	Kenya (11&12/91) 3
Hong Kong (11/91, 2,4/92) 9	Cambodia (3&5/92) +	Pakistan (12/91, 1,3–5/92) +
India (10–12/91) 445	Colombia (1–4/92) 48	Thailand (1&2/91, 3/92) 11
Myanmar (12/91, 1,4&5/92) 4	Hong Kong (1&2,92) +	Turkey (11/91, 1–4/92) 22
Nigeria (1–3/92) 3	Israel (5/92) 1	Venezuela (10&11/91) 2
Pakistan (12/91, 1–5/92) 5+	Kenya (10/91) 1	
Paraguay (12/91, 1&5/92) 6	Malaysian peninsula (6/92) 10	<i>Virus SAT 1</i>
Thailand (12/91, 1–6/92) 19	Morocco (1–6/92) 51	Namibia (4/92) 6
	Oman (11&12/91, 1–4/92) 120	
	Pakistan (12/91–5/92) +	<i>Virus SAT 2</i>
	Paraguay (12/91, 1–3&5/92) 5	Mali (1–4/92) 12
	Saudi Arabia (1,3,4/92) +	Rwanda (5/92) +
	Thailand (12/91–6/92) 29	
	Tunisia (1/92) 1	<i>Virus Asia 1</i>
	Turkey (11/91–5/92) 110	Saudi Arabia (1,3&4/92) +
	Uganda (11/91) +2	Thailand (12/91, 1–6/92) 22
	United Arab Emirates (2&3/92) +	
	Venezuela (10&11/91) 2	

Vesicular Stomatitis		
<i>Virus untyped</i>	<i>Virus Indiana</i>	<i>Virus New Jersey</i>
Panama (4/92) 1	Colombia (1–4/92) 58 El Salvador (10–12/91, 2/92) 4	Colombia (1&2/91, 3&4/92) 105 Costa Rica (10/91, 1&2/92) 9 El Salvador (10/91–1/92) 11 Guatemala (2/92) 2 Honduras (10/91, 1&2/92) 9 Mexico (1&3–5/92) 10 Nicaragua (11/91) 1 Panama (4/92) 1 Venezuela (10–12/91) 11
Rinderpest	Peste des petits ruminants	Contagious bovine pleuropneumonia
India (10–12/91) 21 Oman (12/91, 3&4/92) 4 Turkey (11/91) 2	Guinea (1–6/92) + Mali (4/92) 1 Oman (11/91–4/92) 82 Senegal (11/91–3/92) 16	Guinea (1–6/92) + Italy (12/91–5/92) 137 Kenya (12/91, 2–4/92) 5 Mali (1–4/92) 7 Namibia (2,4,5/92) 3 Nigeria (1&3/92) 11 Portugal (12/91–4/92) 138 Spain (6/92) 1 Tanzania (5/92) 1
Lumpy skin disease	Rift Valley fever	Bluetongue
Botswana (11/91–4/92) 14+ Kenya (11/91) 3 Madagascar (1–12/91 & 1–5/92) 185 Reunion (2/92) 116 South Africa (12/91–5/92) + Zaire (1,2,5,6/92) 5+ Zambia (10/91–4/92) + Zimbabwe (1–6/92) 73	Madagascar (2/91) 4 Mozambique (11/91–5/92) + Zambia (10/91–4/92) +	India (10–12/92) 9 Malaysia (7–11/91) South Africa (12/91–5/92) + United States (1–3/92) +
Sheep and goat pox	African horse sickness	African swine fever
Algeria (1–3/92) 14 India (10–12/91) 80 Israel (1/92) 1 Mali (2–4/92) 4 Oman (11/91–4/92) 23 Pakistan (4/92) + Senegal (1/92) 3 Tunisia (3/92) 2 Turkey (11/91–5/92) 333	Mozambique (11/91–5/92) + Senegal (11&12/91) 7 South Africa (12/91–5/92) +	Congo (1/92) + Italy (1–5/92) 13 Mozambique (12/91–5/92) 1+ Portugal (2/92) 2 South Africa (5/92) 1 Spain (12/91–5/92) 46 Zaire (1–3/92) + Zimbabwe (3/92) 1
Hog cholera	Teschen disease	Fowl plague
Austria (2–5/92) 16 Brazil (1–3/92) 16 Bulgaria (4&5/92) 7 Chile (4&5/92) 6 Colombia (1–4/92) 8 Czech and Slovak Federal Republic (1–5/92) 21 Germany (2,3,5/92) 5 France (1/92) 1 Hong Kong (11/91–2/92 & 4/92) 9 India (10–12/91) 50 Italy (4&5/92) 2 Madagascar (4&5/91) 2 Malaysian peninsula (7–12/91) + Mexico (1–4/92) 18 Myanmar (12/91, 2/92) 3 Netherlands (4/92) 6 Philippines (1–3/92) + Poland (4/92) 2 South Korea (1,2,5/92) 5 Taipei China (12/91, 2–5/92) 13 Thailand (6/92) 1 Yugoslavia (11/91, 1&2/92) 13	Madagascar (12/91) 1	Pakistan (12/91–4/92) + Senegal (12/91) 1 United Kingdom (1/92) 1

Newcastle Disease		
<i>Virus not characterized</i>		
Albania (5/92) 3	<i>Velogenic virus</i>	<i>Mesogenic virus</i>
Brazil (1-4/92) 12	Belgium (2-6/92) 24	Israel (4/92) 1
Chad (1,2&5/92) +	Botswana (12/92) +	
Colombia (3/92) 1	Kenya (11/91-2/92 & 4/92) 12	
Congo (11/91-1/92) +	Malaysia (7-12/91) 2+	
Cyprus (5/92) 2	Myanmar (12/91) 1	
Egypt (12/91-4/92) 8	South Korea (12/91-5/92) 29	
Guinea (1-6/92) +	Sudan (1/92) 1	
Hong Kong (12/91-2/92, 4/92) 7		
India (10-12/91) 118		
Luxembourg (5&6/92) 2		
Madagascar (3-12/91) 15+		
Mali (2/92) 1		
Mexico (3,4&6/92) 5		
Mozambique (11/91-5/92) +		
Myanmar (2-5/92) 19		
Nigeria (2/92) 2		
Pakistan (12/91, 2-5/92) +		
Philippines (1,3,4/92) +		
Senegal (12/91) +		
South Africa (12/91-3/92) 5		
Thailand (1-4 & 6/92) 11		
Tunisia (1/92) +		
Turkey (11&12/91, 2-5/92) 24		
Yugoslavia (11/91, 1-5/92) 18		
Zaire (1,2,5&6/92) +		
Zambia (10/91-4/92) +		

(Dr. Peter Fernandez, International Services, APHIS, USDA, Hyattsville, MD 20782, 301-436-8892)

National Center for Import and Export

Actions Taken in FY 1992 on Requests From Foreign Governments To Be Recognized Free of Specific Diseases. Poland was officially recognized free of foot-and-mouth disease (FMD), and Chile was officially recognized free of velogenic viscerotropic Newcastle disease (VVND) and swine vesicular disease (SVD).

A proposed regulation was published in the Federal Register to recognize Spain free of FMD, SVD, and hog cholera.

An inspection team of APHIS veterinarians conducted an onsite evaluation of the FMD situation in The Netherlands. Based on that evaluation, a proposed regulation to recognize The Netherlands free of FMD will soon be published in the Federal Register.

Another APHIS inspection team also conducted an onsite evaluation of the FMD situation in France and has prepared a report on its findings.

APHIS also evaluated requests from Austria to be recognized free of FMD, SVD, and VVND; from Korea and Hungary for FMD; and from Panama for VVND. All of these requests are still pending until additional information has been submitted to clarify the animal and poultry disease status in these countries.

In September 1992, APHIS published in the Federal Register adding Denmark to the list of countries where BSE has been reported. Denmark had a single BSE case involving a cow imported from the United Kingdom in 1988. Danish authorities have slaughtered all the cattle on the affected farm and all cattle in a neighboring herd. Comments on this interim rule were accepted until November 23, 1992.

On January 14, 1993, APHIS published a notice in the Federal Register declaring Denmark free of BSE.

Summary of FY 1992 Activities in VS' Import-Export Products Staff

The number of permits issued in FY 1992 authorizing the importation of organisms, vectors, biological materials, and animal products and byproducts rose to 5,881—706 more than those issued in FY 1991. The Import-Export Products Staff expects to continue to see a sizable increase in permit requests as the world's scientific technology continues to grow exponentially.

A final regulation authorizing the transiting of pork products through the United States to other countries from the State of Sonora in Mexico was also published in the Federal Register.

Studies were completed involving the inactivation of FMD, hog cholera, SVD, and African swine fever viruses during the processing of various dried and cured pork products at the Plum Island Animal Disease Center. A paper on the results of these studies has been accepted for publication in Food Microbiology. As a result of the success of these studies, APHIS is in the process of developing a proposed regulation that will allow the importation of such dried and cured products. This project was conducted in cooperation with the Government of Spain.

Working cooperatively with the Government of Uruguay, APHIS also completed a project involving the inactivation of FMD virus in cooked beef patties in that country during FY 1992. The results of this study have been accepted for publication in the Journal of Food Protection. A proposed regulation permitting the importation of ground beef patties into the United States produced under this USDA-approved process is currently being developed.

(Dr. J. Cougill, Import-Export Staff, VS, APHIS, USDA, Hyattsville, MD, 301-436-3585)

2nd **Velogenic Neurotropic Newcastle Disease in North America**

During July 1992, the U.S. Department of the Interior's Fish and Wildlife Service reported several incidents of high mortality in waterfowl, particularly cormorants and pelicans, in the Great Lakes area and also on wildlife refuge lakes in Nebraska, North and South Dakota, and Minnesota. Similar illness and mortality were reported from nearby regions in Canada. The final extent of the epizootic was from the eastern end of Lake Ontario on the New York border, west and north to Saskatchewan, and south to northwestern Nebraska (fig. 1). The epizootic peaked about mid-July.

The outbreak affected mainly cormorant chicks 4 to 6 weeks of age. It was estimated that 50 percent of the young birds were infected and 20 percent died in their nests. In total, more than 10,000 of these nestlings died. Sick birds showed clinical signs of nervous tremors and partial paralysis. Gross pathology of the birds suggested the presence of Newcastle disease (ND). In late July, an ND virus was isolated from sick cormorants in Minnesota and Michigan. This virus was found to be highly pathogenic for poultry, affecting the central nervous system of laboratory test chickens. The ND virus was characterized as a velogenic neurotropic strain at NVSL (Ames, IA).

Because of the potential severe threat to poultry, ND surveillance was increased for wild waterfowl and all poultry in the northern Mississippi flyway. On August 3, 1992, VS' Emergency Programs Staff received notice of an episode of sickness and death in a range turkey-rearing operation in North Dakota. The signs were reported to be similar to those described from sick cormorants in the Great Lakes area. The turkey flock premises were located in the Devils Lake Wetlands District, Benson County, ND.

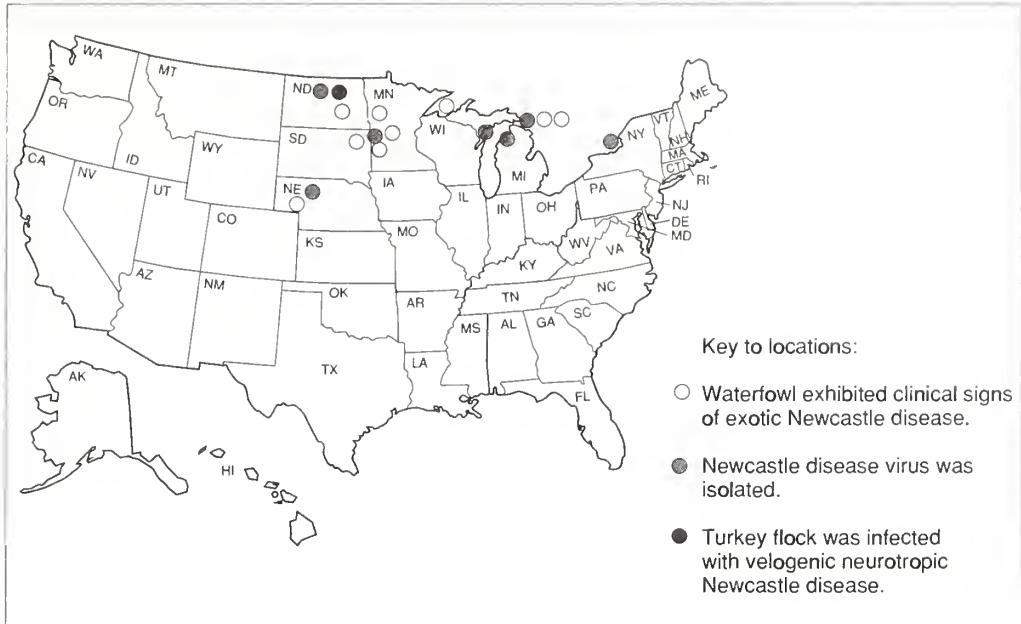


Figure 1 — Exotic Newcastle disease outbreak, 1992. (Sources: USDI Fish and Wildlife Service and USDA Animal and Plant Health Inspection Service.)

State and Federal veterinarians investigated the farm, and initial serologic tests indicated that the birds had been exposed to ND virus. On August 4, a hold order was placed on the premises, and after an ND virus was isolated from the sick birds, a written quarantine was placed on the premises August 7, 1992, by North Dakota veterinary authorities.

The virus was characterized as velogenic neurotropic Newcastle disease (VNND) on August 20, 1992. When the virus was inoculated into experimental chicks, 75 percent showed severe neurologic signs and 25 percent died. Extensive surveys were conducted on farms within a 10-mile radius of the affected premises, and all domestic bird flocks were sampled within a 6-mile radius. A small backyard flock of mixed poultry species, owned by a person who worked on the infected turkey farm, suffered losses. On investigation, observers found no clinical signs of VNND, and the flock repeatedly tested negative for ND virus. All premises within the 6-mile radius also subsequently proved negative for Newcastle disease and the virus that causes it.

Clinical investigations on the affected farm revealed that many turkeys had leg paralysis and were unable to walk. Many showed torticollis and other postural abnormalities, indicating the presence of a central nervous system disorder. Sick turkeys were able to eat if assisted but were unable to raise their heads. As a result, most of the affected turkeys died of starvation. The flock owner stated that during the last 2 weeks of July, he lost approximately 500 turkeys in a group of about 27,000. At any one time, 200-plus birds showed nervous signs and paralysis. The largest group of birds sick at one time was about 400 on August 6, 1992. This date appeared to mark the peak of the epidemic in this flock. A second flock of 27,000 younger birds, which had been kept separated at the onset of the problem, showed no signs of the disease. Laboratory specimens collected in this second flock were negative.

As a result of the heightened awareness of epizootic disease in the area, the Fish and Wildlife Service learned of excessive numbers of cormorant deaths on an island in the East Bay of Devil's Lake. Reports received on August 6 noted that all sick birds on the

island were young nesting birds; no adults appeared to be affected. This pattern repeated that seen in the Great Lakes area. Additional diagnostic samples were collected from these sick waterfowl and forwarded to NVSL for testing. ND virus was isolated from several of these cormorants, and the isolates were later characterized as VNND virus. Monoclonal antibody studies at NVSL showed that these isolates were identical to the isolates from the North Dakota turkeys.

The affected turkey flock continued to have a low but steady morbidity and mortality from the disease (approximately 1,000 sick and 500 dead) until the date it was destroyed. A State and Federal team from the VS Central Region was organized onsite for further disease investigation, to appraise, euthanize, and dispose of all 26,000 16-week-old turkeys. On August 22 and 23, 1992, these birds were euthanized using CO₂ gas and the carcasses were disposed of onsite by controlled burning in a shallow trench, using a gel mixture of gasoline and diesel fuel. The depopulation of the turkey flock was completed on August 24. The owner was compensated for the destroyed birds, contaminated feed remaining, and related materials. The premises were released from quarantine on August 24, 1992, by the North Dakota State Veterinarian.

The adjacent, separate flock of 27,000 younger turkeys was closely monitored and observed twice weekly by a veterinarian. It remained asymptomatic until the time of commercial slaughter. The turkey owner vaccinated the flock against ND virus on August 29, 1992. On September 15, an ND virus was isolated from this turkey flock, and the virus was characterized as VNND on September 22. However, by that time the turkeys had been marketed.

No further cases of velogenic Newcastle disease have occurred in U.S. poultry to date.

(Dr. Adam Grow, Emergency Programs, VS, APHIS, USDA, Hyattsville, MD 20782, 301-436-8073)

2a

An Outbreak of Equine Illness in New England

An outbreak of equine illness at a thoroughbred racetrack in New Hampshire came to the attention of regulatory officials on July 8, 1992. Principal signs reported were fever and limb swelling. Further investigation showed that affected horses were confined to three thoroughbred tracks—Suffolk Downs and Foxboro in Massachusetts and Rockingham Park in New Hampshire.

Of great concern was the information that "several" horses had died; this information later proved to be somewhat exaggerated. Because of the presenting signs, the illness was at first believed to be equine viral arteritis (EVA). This diagnosis was subsequently supported by necropsy evidence from one horse. The State Veterinarians of Massachusetts and New Hampshire imposed quarantines on the three affected racetracks, beginning with Rockingham Park on July 10 and followed by Suffolk Downs on July 14 and Foxboro on July 17. APHIS diagnosticians and equine specialists from universities in New England, New York, and Kentucky examined affected horses. Samples were submitted to NVSL (Ames, IA) and the Foreign Animal Disease Diagnostic Laboratories (Plum Island, NY). APHIS' first priority was to rule out FAD such as African horse sickness (AHS) and getah, and to trace movements of horses from the tracks prior to the quarantines.

In the week of July 22, 1992, involved laboratories ruled out AHS, getah, and EVA based on negative findings from serologic and virus isolation tests. Samples subsequently collected also proved negative for these diseases.

APHIS personnel contacted management and trainers at involved racetracks and obtained lists of horses that had left the tracks in the 2 weeks preceding the first quarantine placement. Horses destined for locations outside New Hampshire and Massachusetts were given traceback priority. About 40 horses and their out-of-State locations were identified, and the receiving States were notified and given all available information. The same was done for one horse traced to Canada. Many receiving locations initiated their own investigations to determine the health status of these horses. To date, none of the horses moved were found with signs similar to those affected at the New England tracks.

APHIS personnel conducted a series of epidemiologic surveys at the three tracks in cooperation with veterinarians from Tufts University. Two studies were undertaken at Suffolk Downs and Foxboro Race Track, and three were carried out at Rockingham Park. The first was a survey of 10 private veterinarians at each track concerning their clinical findings. The second was a survey of trainers reported to be managing affected horses. Trainers were asked about clinical signs and response to treatment for each of their affected horses. The third study—a case-control study conducted only at Rockingham Park—sought to trace ill and healthy horses to various environmental exposures and management practices that practitioners and trainers had suggested as possible risk factors for illness.

The practitioners estimated seeing a total of 215 affected horses from a combined practitioner-estimated population of 2,221 horses at the three racetracks. These figures yield an attack rate of 9.7 percent. Most horses were described as having temperatures greater than 101 °F. Prompt administration of phenylbutazone may have suppressed the development of fever in some horses. Of the 215 affected horses, an estimated 200 (93 percent) showed edema of at least one limb. Mean duration of edema was 5 days. Ten horses had eyelid edema. Twelve stallions showed scrotal edema, and 14 mares had udder edema.

Increased digital pulses were noted in approximately 84 horses (39.1 percent). One horse was reported as foundering, and eight had "sinking feet." Table 1 illustrates other signs noted by practitioners.

Table 1—Other signs reported by practitioners

Sign	Number of horses (%)
Injected mucous membranes	96 (45)
Depression	57 (27)
Urticaria	44 (21)
Nasal discharge	43 (20)
Increased heart rate	38 (18)
Decreased appetite	34 (16)
Ocular discharge	33 (15)
Petechial hemorrhages	31 (14)
Diarrhea	13 (6)
Cough	11 (5)

During the week of July 26, 1992, 61 trainers with affected horses at the three tracks were interviewed. The trainers reported being responsible for a total of 556 horses at the tracks and provided information for 192 affected horses. Figure 1 depicts the number of new cases by date of onset (the epidemiological curve) for all three racetracks.

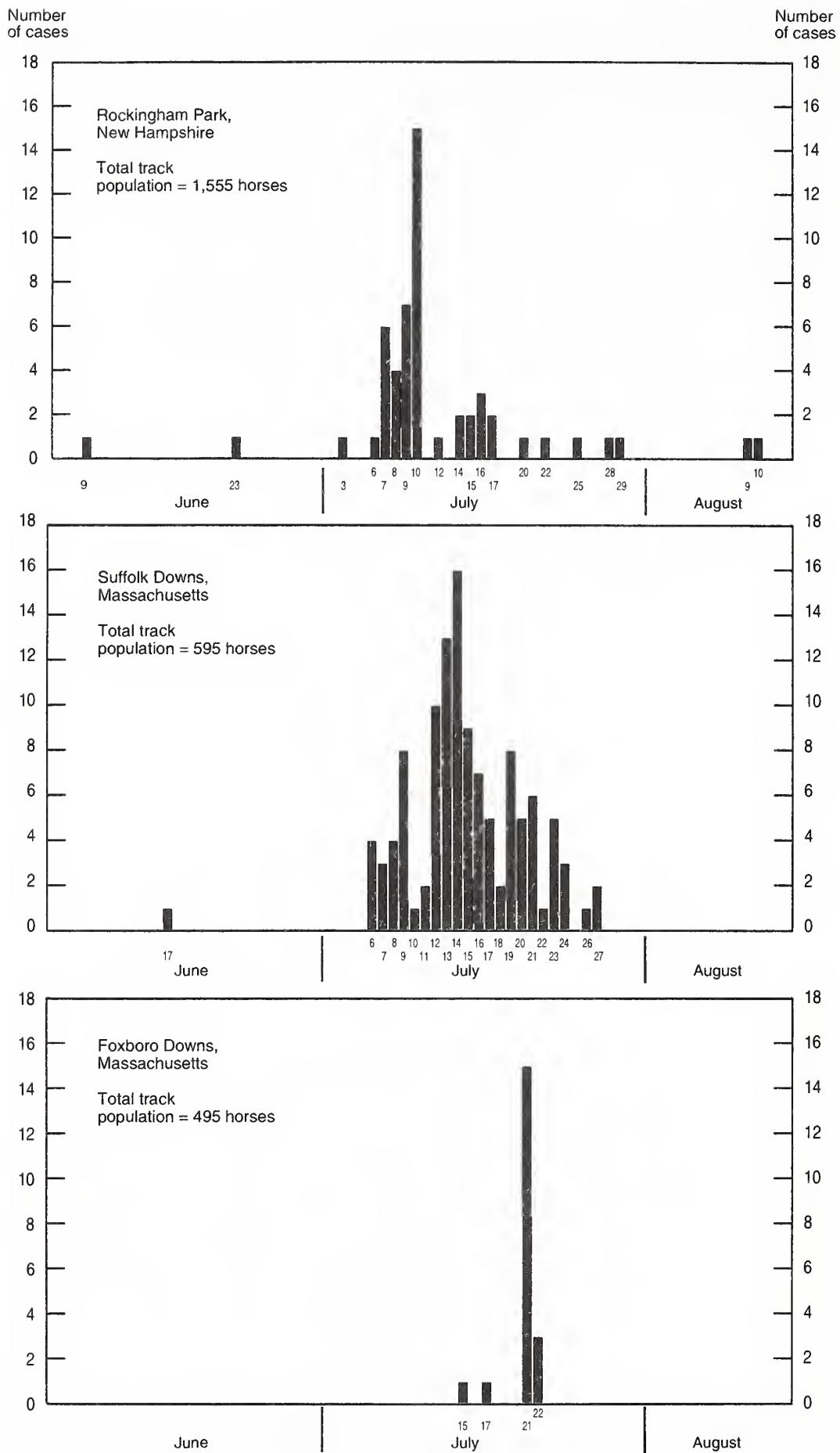


Figure 1—Epidemiological curve for all three racetracks.

Of 192 affected horses, 129 (72 percent) were reported having a temperature greater than 101 °F. The average temperature recorded was 101.7 °F, with a range from 99.8 °F to 104.6 °F. The average duration of elevated temperature was 26.5 hours. Edema of at least one limb was reported for 143 horses (74.5 percent). The average duration of the limb swelling was 3.3 days. Table 2 illustrates clinical signs reported by trainers.

Table 2—Signs reported by trainers for 192 affected horses at Rockingham, Suffolk Downs, and Foxboro racetracks

	Number of horses (%)	Average duration
Fever (°F)		26.5 h
< 101	50 (26)	
101–102	89 (46)	
102.1–103	22 (11)	
103.1–104.6	18 (9)	
Edema		
Of the limbs	143 (74)	3.3 d
All four legs	58	
Rear only	80	
Fore only	6	
Of the scrotum (in stallions)	10 (5)	3.1 d
Of the udder (in mares and fillies)	19 (10)	4.9 d
Of the eyelid	25 (13)	3.6 d
Hot/warm feet with increased digital pulses	101 (53)	5.2 d
Foundering	12 (6)	—
Urticaria/rash	48 (25)	10.7 d
Decreased appetite	29 (15)	—
Nasal discharge	26 (14)	—
Cough	15 (8)	—

Trainers also reported several other problems. Twelve trainers reported their horses appearing to be sore or stiff, four trainers reported colic, and four trainers reported diarrhea. There were sporadic reports of ventral abdominal edema, and two horses developed neurologic signs (ataxia, urinary incontinence, and paraphimosis).

Trainers were asked at the time of the interview whether, in their opinion, the horse was better than, worse than, or the same as on the date symptoms first manifested themselves. Seven horses were worse, 7 others were reported to be the same, and 169 were reported to be better. Seven trainers reported the death of one horse each. One

hundred twenty-nine horses were reported as back to "normal," with 4.7 days the average time from the onset of symptoms to the restoration of health. Twenty-two horses (11 percent) were described as relapsing after recovering from their initial illness.

When asked about the vaccination status of the affected horses at the time of onset, trainers reported that 90 horses were current for equine influenza vaccine. Forty-nine horses had not been vaccinated within the previous 12 months, and 47 horses were reported to have unknown vaccination status. In response to the same inquiry regarding rhinopneumonitis vaccine, trainers reported that 92 horses were up-to-date at the time of onset of illness, 48 were not current, and 45 horses were of unknown vaccination status.

On July 30, 1992, the trainers at Rockingham Park were asked to provide information on randomly selected horses not affected. The purpose of this request was to obtain control animals to compare to the case horses in an attempt to establish risk factors for the disease. Information was provided on 76 control horses to compare to the 55 cases at Rockingham Park.

The barn and stall location were recorded for each horse. Trainers were asked questions about the age, sex, and racing status of their horses. Information about the sources of water, feed, and bedding was obtained. How long the horses had been at the track and where they were formerly stabled were among other factors investigated. The interviewers also discussed with the trainers whether or not a particular horse had been to the spit box recently, when it last raced, and what its finish position was in the last race. Interviewers obtained the names of farriers and equine dentists working with the subject horses. Other factors, such as moving van companies hauling horses, drug use history, etc., were recorded as well.

The only identified risk factor for illness was age. Two-year-old horses were the most likely to be affected. Horses treated with phenylbutazone were more likely to remain well. Although the case-control study failed to identify a particular exposure as the source of the disease, the findings validate the general feeling that young horses under stress can be good sentinels for disease agents in a horse population.

Cases Off the Track. APHIS veterinarians received several reports of horses with clinical signs similar to those of affected racetrack horses. These reports were investigated; however, lack of a diagnostic test or specific case definition hampered the effort. To date, three horses have been judged to have the same illness as horses at the racetracks. Two of three were racehorses that had been housed at Suffolk Downs until the day before the quarantine (July 14). The third was an Appaloosa mare that had not been on any of the involved racetracks, but four horses in her stable were from Foxboro Race Track, and she was cared for by people who also cared for affected horses at Suffolk Downs.

Lifting of the Quarantines and Subsequent Cases. On August 1, 1992, the State Veterinarian in New Hampshire lifted the quarantine on Rockingham Park. Two days later, Massachusetts lifted the quarantine on the horses on the two tracks in that State.

The last new incidence of illness at Suffolk Downs was July 27, when two horses were reported ill. Since July 22, 1992, there have been no new cases reported at Foxboro Race Track. Subsequent to the quarantine being lifted at Rockingham Park in New Hampshire, one case was reported on August 9 and a second, on August 10, 1992. Both animals recovered uneventfully.

Recent Cases. On September 18, 1992, APHIS received a report from Rockingham Park that two horses there demonstrated moderately elevated body temperature, edema in all four limbs, "hot feet," and petechial hemorrhages of the oral mucosa. One of these animals had been previously affected during the summer but recovered. The second horse was previously unaffected. On September 19, a third possible symptomatic horse was reported at the track. This horse had also been affected during the summer but recovered. About this same time, a fourth case was identified there. After handlers recognized their illness, these horses were isolated from others at the track. One of these animals was euthanized, and tissues were sent to NVSL for diagnosis. The other three horses have recovered.

Whereas the foreign diseases AHS and getah and EVA and other known domestic afflictions have been ruled out based on NVSL's workup, the etiologic agent for this illness remains unknown.

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(Dr. Susan C. Trock, VS, APHIS, USDA, Scotia, NY, 518-370-5026; and Dr. Robert C. Brady, VS, APHIS, USDA, Boston, MA)

yes
**Bovine Spongiform
Encephalopathy
Worldwide** *bf*

Great Britain has now had more than 68,000 confirmed cases of BSE (table 1). The first case in Denmark was recently reported (table 2), in a cow imported from, and probably infected in, Great Britain. Neither Denmark, Oman, nor the Falkland Islands is known to have had a case of BSE in native cattle.

Table 1—Bovine spongiform encephalopathy statistics for Great Britain*, September 4, 1992

Confirmed cases	68,236
Affected herds	20,339
Percentage of dairy herds affected	37.5
Percentage of beef suckler herds affected	6.1

*England, Scotland, and Wales.

Table 2—Other countries affected by bovine spongiform encephalopathy

	Imported cases	Native cattle	No. of cases	Date of last report
Northern Ireland	Yes	Yes	482	3 Sep 92
Republic of Ireland	Yes	Yes	58	1 Sep 92
France	No	Yes	5	31 Jul 92
Switzerland	No	Yes	21	21 Sep 92
Oman	Yes	No	2	31 Jul 92
Falkland Islands	Yes	No	1	4 Sep 92
Denmark	Yes	No	1	10 Aug 92

The numbers of confirmed BSE cases in Great Britain through March 1992 are shown by quarter year of clinical symptom onset in figure 1. The numbers are not more current because the period from clinical onset to confirmation may be up to 6 months. The number of new cases is expected to begin to decline sometime in 1992.

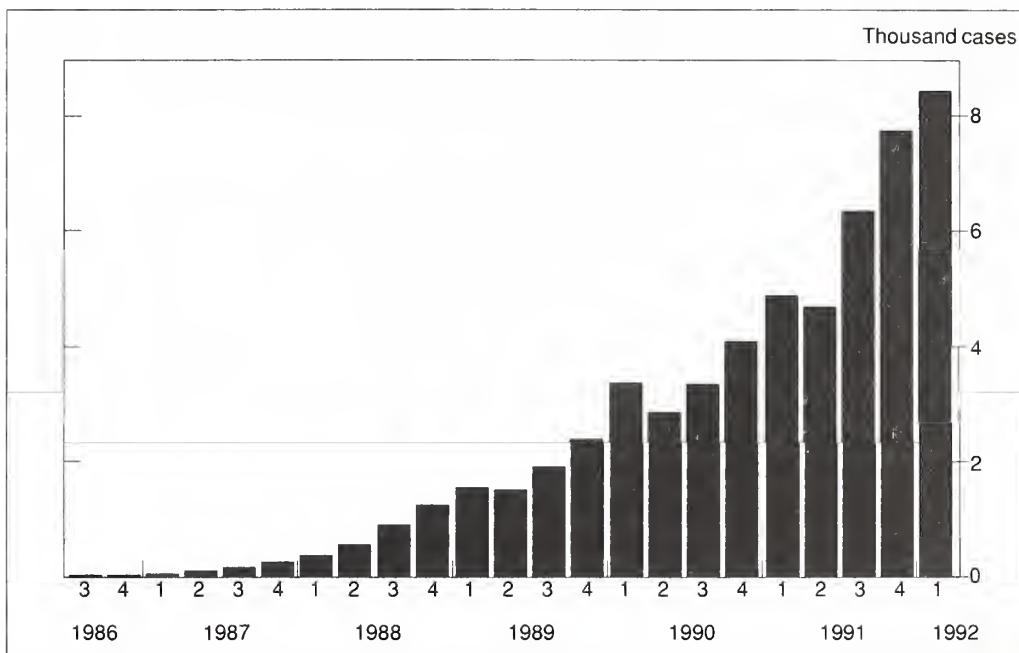


Figure 1 — Cases of bovine spongiform encephalopathy confirmed in Great Britain, by quarters, July 1986–March 1992.

BSE has never been diagnosed in the United States (see also the Foreign Animal Disease Update section for a description of the ongoing surveillance program). None of the brains collected in that program have been found to contain lesions with the characteristics and distribution typical for BSE. Lesions characterized by inflammation (e.g., listeriosis), degeneration (e.g., polioencephalomalacia), and neoplasia (e.g., meningioma) have been found; however, about half the cases have been categorized as without significant findings.

(This feature was compiled from data provided by Lyle Miller, Iowa State University; O. Denny, Northern Ireland; B. Hornlimann, Switzerland; and J. Wilesmith, Great Britain. Figure 1 was adapted from the Dx Monitor, a newsletter published by USDA-APHIS.)

July
**Screwworm Outbreak
in Mexico—Update**

Outbreaks of screwworm were reported in southern Mexico on January 22, 1992, and in northern Mexico on April 22, 1992. As of July 3, 52 cases had been identified, with the latest northern case detected on June 22. Since that collection, 61 additional positive samples have been confirmed. The cases were distributed in the states of Campeche (13), Tabasco (13), Capes (15), Veracruz (10), and Tamaulipas (10) (fig. 1).

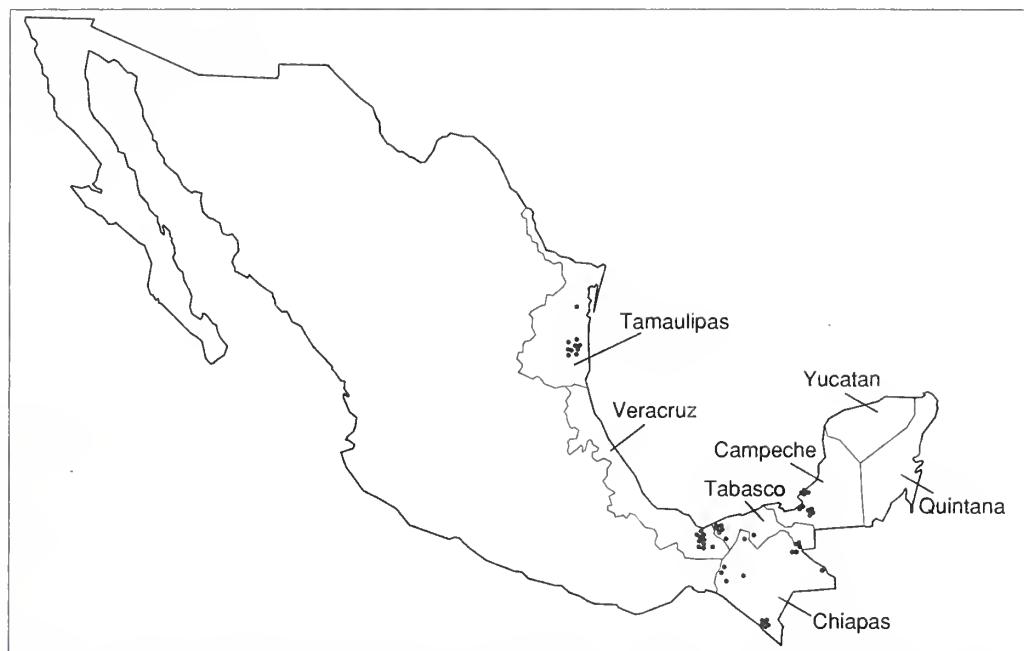


Figure 1 — Locations in Mexico where screwworm outbreaks occurred January 22–September 17, 1992.

The most recent case was collected on September 30 in the northern area. The case found closest to the United States occurred 121 miles south of the U.S.–Mexican border in the town of Soto la Marina, Tamaulipas. The dispersal grid for release of sterile flies to treat this outbreak has been markedly increased in order to contain the screwworm outbreak and prevent its movement north to the United States.

(Dr. E. Gersabeck, International Services, APHIS, USDA, Hyattsville, MD, 301-436-8892)

July
**Viral Hemorrhagic
Disease of Rabbits
in Mexico—Update**

Mexico is close to eradicating viral hemorrhagic disease (VHD) of rabbits. Surveys in 1992 did not detect any new infected premises (table 1), and the last new case was confirmed on April 10, 1991.

Table 1—Summary of activities of the campaign against viral hemorrhagic disease (VHD) of rabbits in Mexico

Year	Number of field investigations	Affected premises	Sacrificed rabbits	Affected states
1988	—	61	—	3
1989	10,349	2,788	111,180	15
1990	1,173	1	7,033	3
1991	3,298	1	2,306	1
1992	657	0	60	0
Total	14,818	2,838	120,579	

— = Data not available.

As part of the strategy to eradicate the disease, extensive serologic surveys were continued through 1991 (fig. 2) and into 1992. All seropositive animals and their contacts were depopulated, and the involved premises were cleaned and disinfected.

During the course of the eradication campaign, 120,579 rabbits have been destroyed. However, in a program of repopulation, approximately 90 percent of these (107,301 animals) had been replaced by August 2, 1992. Out of the original 15 states affected by VHD, rabbits in 12 have been completely repopulated, and those areas continue to be free of the disease. In the near future, repopulation should be complete and the disease should be eradicated in Mexico.

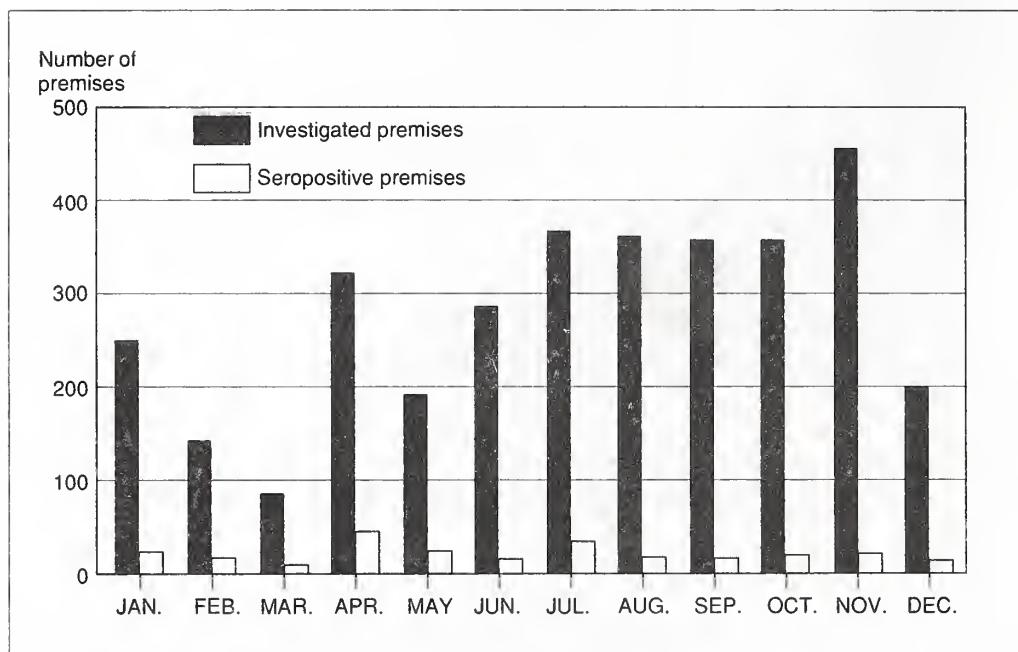


Figure 1 — Serologic surveys for viral hemorrhagic disease in 1991.

(Dr. Armando Mateos, Director, Mexico—United States Exotic Animal Disease Commission, Mexico City, Mexico)

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